

A new species of *Lucapina* from Canopus Bank, N.E. Brazil (Vetigastropoda, Fissurellidae)

Paulo Marcio S. Costa¹ and Luiz Ricardo L. Simone²

¹ Museu Nacional da UFRJ, Quinta da Boa vista s/n., 20940-040 Rio de Janeiro, RJ, Brazil. email: pmscosta@yahoo.com

² Museu de Zoologia da USP, Cx. Postal 2494, 04299-970 São Paulo, SP, Brazil. email: lrsimone@usp.br

Abstract

Lucapina elisae (Vetigastropoda, Fissurellidae) is a new species described for deep waters (from 260 m depth) in Canopus Bank, off Ceará, N.E. Brazilian coast. The shell is large, thin walled, with small orifice, and delicate reticulate sculpture. A preliminary gross anatomy of the species is also provided.

Keywords: *Lucapina elisae* n. sp, Brazil, Fissurellidae, deepwaters.

Resumo

Lucapina elisae (Vetigastropoda, Fissurellidae) é uma espécie nova descrita para águas profundas (260 m) no Banco de Canopus, ao largo do Ceará, costa nordeste do Brasil. A concha é grande, frágil, com orifício pequeno e uma escultura delicada reticulada. Uma anatomia superficial da espécie é também incluída.

Palavras-chave: *Lucapina elisae* n. sp, Brasil, Fissurellidae, águas profundas.

Introduction

The genus *Lucapina* Gray in Sowerby, 1835 (type species *L. elegans* Gray, 1835) belong to the vetigastropod Fissurellidae, cape shelled gastropods that normally possess a slit used for the excurrent flow of water from the pallial cavity. In most and more advanced species of fissurellids, the slit is separated from the shell edge, forming an orifice, which normally is the top of the shell. The *Lucapina* has as main character the shell relatively reduced, in such mantle border exceed it, forming a wide fringe surrounding the shell. They are relatively active, sometimes crawling beyond hard substrates. There are four species of *Lucapina* in Brazilian coast (Rios, 1994).

Dredges in Canopus Bank, located off Ceará, Brazil, have revealed a series of new and interesting species. This paper deals with the first description of new species of a *Lucapina*.

The material of the species described herein is relatively scarce, and is deposited in the malacological collections of the Museu de Zoologia da Universidade de São Paulo (MZSP); Museu Nacional da Universidade Federal do Rio de Janeiro (MNRJ), and Museu Oceanográfico da Fundação Universidade de Rio Grande (MORG).

Family Fissurellidae

***Lucapina elisae*, new species**

(Figs. 1-18)

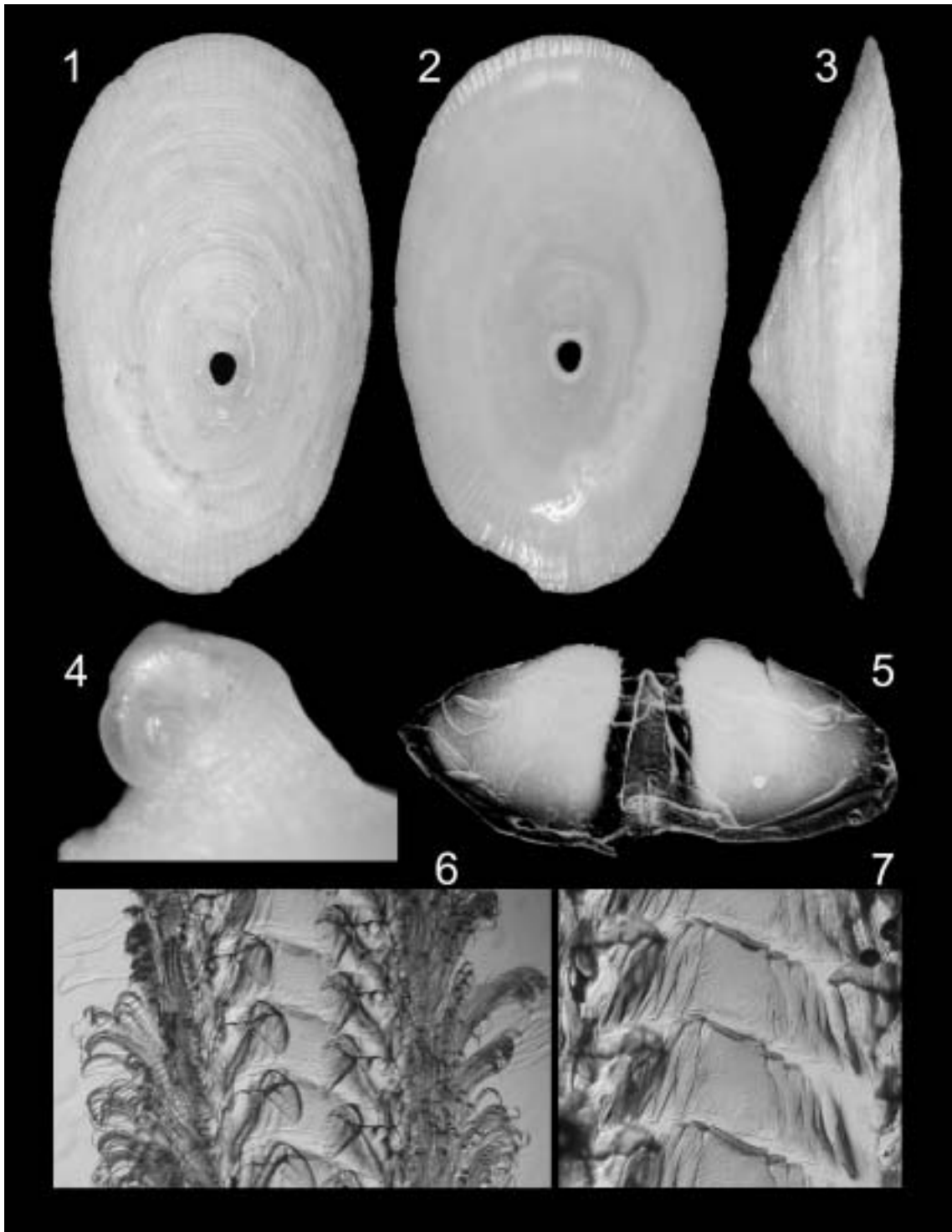
Type material: Holotype MNRJ 10661. Paratypes from type locality: MZSP 61229, 9 specimens (6 lacking shell), 1 shell; MZSP 53934, 3 shells, MZSP 78194, 1 shell, MNRJ 10680, 2 shells, MNRJ 10681, 1 shell, MNRJ 10683, 2 broken shells, MORG 46442, 1 shell.

Type locality: BRAZIL. Ceará; Canopus Bank, off Fortaleza, 02 14' 25"S 38 22' 50"W; 240-260 m depth (xi/2005, J. Coltro & P.M. Costa col.).

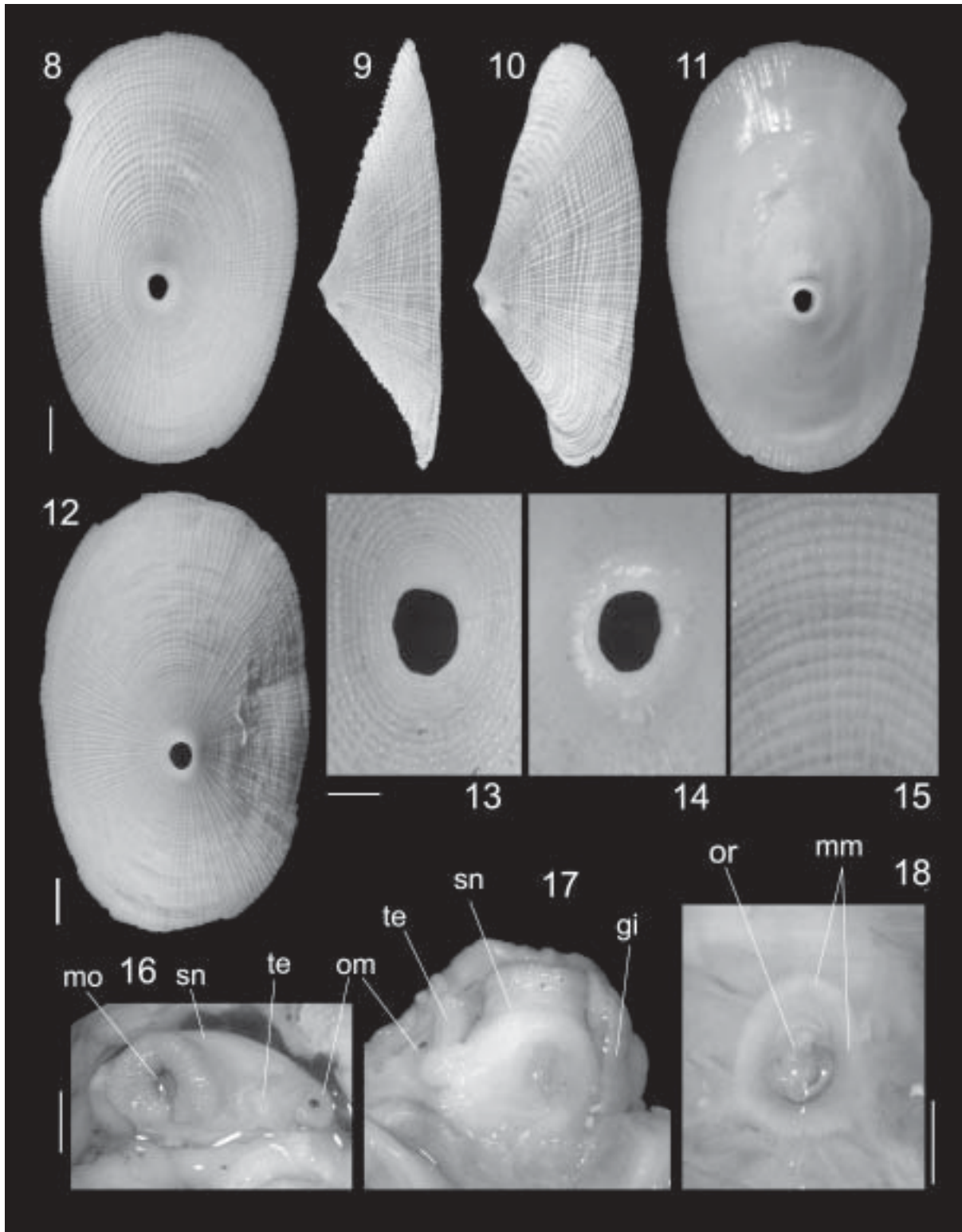
Diagnosis: Shell with relatively thin walls; size large (about 50 mm); orifice relatively small, located between middle and posterior thirds; about 170 radial delicate lines uniformly distributed, normally equally predominant that concentric lines.

Description

Shell (Figs. 1-4, 8-15). Elliptical, fragile, about 50 mm, antero-posteriorly elongated (length/width ratio about 1.6; length/width $e \cdot 1.53$, $d \cdot 1.69$); anterior region somewhat wider (Figs. 1, 8) or similar sized than posterior region (Fig. 12). Elevation weak, height somewhat a third of length (Figs. 3, 9, 10) (height/length $e \cdot 0.23$, $d \cdot 0.29$). Color pure white. Protoconch (seen in a very young specimen) translucent, white, with about $1\frac{1}{4}$ smooth, weakly planispiral whorls; situated perpendicularly to longitudinal axis. Orifice located approximately between middle and posterior thirds (Figs 1, 2, 8-12); proportionally small (about 6% of outer shell



Figs. 1-7, *Lucapina elisae* n. sp.: 1-3, Holotype MNRJ 10661, dorsal, ventral and right views; total length = 60.5 mm; 4, paratype MNRJ 10681, detail of protoconch of a young specimen; 5, jaw plates, ventral view; width = 5 mm; 6-7 radula in optical microscopy; 6, wider view of about 2 mm portion; 7, detail of central region (Figs. 5-7 MNRJ 10682).



Figs. 8-18, *Lucapina elisae* n. sp: 8-11, Paratype MZSP 78194, dorsal, lateral-left, same slightly dorsal, ventral views respectively; 12, Paratype MZSP 67299, dorsal view; 13-18, paratypes MZSP 61229; 13, detail of orifice, dorsal view; 14, same, ventral view; 15, detail of sculpture, dorsal view, middle-anterior region; 16, snout and adjacencies, ventral view; 17, same, dorsal view, mantle deflected posteriorly, a gill still covering right region; 18, mantle orifice and adjacent musculature, dorsal view. Scales 1-5 = 5 mm; 6-11 = 2 mm. Lettering: gi, gill; mm, mantle muscles; mo, mouth; om, ommatophore; or, mantle orifice; sn, snout; te, tentacle.

area); orifice borders slightly oval, irregular (Figs. 13, 14), often feebly turned posteriorly (Fig. 9). Outer sculpture constituted by delicate spiral and radial lines, both equally predominating or weak predomination of radial lines (Fig. 15); about 170 radial lines in uniform arrangement; radial lines forming a mosaic of larger radial lines separated by four narrower radial lines (Figs. 1, 8, 12). Inner surface smooth, glossy; narrow undulations close to edge, corresponding to outer sculpture (Fig. 2, 11). Muscular scars very weak. Narrow and shallow thickness surrounding orifice; shallow concavity anterior to this thickness in some specimens (Fig. 11), absent in others (fig. 2, 14).

Head-Foot (Figs. 16, 17). Lacking pigment. Head protruded, occupying about $\frac{1}{4}$ of total head-foot volume and about half of shell width. Snout with about $\frac{1}{3}$ of head volume and length; anterior margin thick, yellowish, with transversal, radial folds. Mouth longitudinal, wide, in middle region. Cephalic tentacles with about half of head-foot length, flattened, with 3-4 longitudinal furrows, located laterally. Ommatophores located externally to tentacles, with about half of their size. Foot plane, with about same size than shell aperture. Shell muscle horseshoe shaped, relatively thin. Epipodium a single, low flap surrounding lateral surface of foot, possessing short, simple tentacles along its free edge, separated from each other.

Pallial cavity (Fig. 18). Mantle edge simple, including portion surrounding orifice. Pallial muscles surrounding orifice simple, located at short distance from it anterior region somewhat straight. Pair of gill long, projected, anterior end pointed (Fig. 17: gj).

Jaws (Fig. 5). Relatively thin, semi-transparent. Each plate slightly triangular, anterior edge bluntly pointed, turned medially. Between both plates a relatively wide space equivalent to about half of each plate width. Cutting edge relatively elevated thicker, weakly and irregularly serrated.

Radula (Figs. 6, 7). Rachidian trapezoidal, no cusps, cutting edge curved inwards, with about $\frac{3}{4}$ of posterior edge length; weakly asymmetrical, right region slightly more posterior than left region. Five pairs of lateral teeth as narrow versions of rachidian, relatively long, flattened, cutting edge with single, middle, pointed cusp curved inwards and medially; lateral teeth gradually becoming narrower from first tooth to fifth tooth, being also dislocated posteriorly as an asymmetrical arch. About 20 pairs of marginal teeth, each tooth tall, slender and elongated; distal end curved inwards, preceded by slightly broader region bearing 4-5 pairs off sub-terminal, very small cusps.

Measurements (respectively length, width, height in mm): Holotype MNRJ 10661: 60.5 by 35.7 by 14.4; Paratypes: MNRJ 10680: #1, 47.4 by 31.0 by 13.8, 36.2 by 22.6 by 8.4; MNRJ 10681: 13.5 by 8.8 by 4.6; MNRJ 10683: 32.7 by 22.6 by 9.2, 23.4 by 11.4; MORG

46442: 36.4 by 23.5 by 9.2; MZSP 78194: 49.9 by 29.6 by 13.4.

Distribution: Brazil, Canopus Bank, Ceará.

Habitat: Gravel bottoms, 240-260 m depth, possibly feeding on Foraminifera.

Material examined: Types and nine specimens lacking shells, MNRJ 10682, all from type-locality.

Etymology: The specific epithet is in honor of Elisa Gradvohl Bezerra who provided logistical support for campaign at Ceará.

Discussion: There is no species in the western Atlantic that can be confused with *Lucapina elisae*, based on the shell features, thinness and habitat (Farfante, 1943a, 1943b; Rios, 1994). *L. elisae* only resembles *Diodora tanneri* Verrill, 1882, from Delaware Bay, Antilles and Barbados, 180-720 m depth (see Verrill, 1882; Farfante, 1943b: 18-19) in being deep water and in shape and thinness of the shell; however, *L. elisae* differs in having a longer shell shape, while the length/width ratio of *L. elisae* is $e \cdot 1.53$ $d \cdot 1.69$, that of *D. tanneri* is $e \cdot 1.27$ $d \cdot 1.51$; the height of *L. elisae* is lower, its length/height ratio is $e \cdot 3.43$ $d \cdot 4.31$, while that of *D. tanneri* is about $e \cdot 2.55$ $d \cdot 2.87$; additionally, the orifice of *L. elisae* is located between the middle and posterior thirds of the shell, while that of *D. tanneri* is located almost in the center; *L. elisae* has also more quantity of radial lines, about 170, while the number of radial lines in *D. tanneri* is about 140. The shell characters of *D. tanneri* indicate a closer relationship with *Lucapina*. All remaining Western Atlantic species of *Lucapina* have a proportionally larger orifice, which can easily differentiate with smaller orifice of *L. elisae* (see Farfante, 1943a, 1943b).

Acknowledgments

A special thank to Femorale (José and Marcus Coltro) by collect and donation of the specimens. To Sergio Vanin by opinions on the species systematics. This paper is part funding by governmental supports by Fapesp (Fundação de Amparo a Pesquisa do Estado de São Paulo), processes 04/10793-9; 04/00309-2.

References

- FARFANTE, I.P. 1943a. The genera *Fissurella*, *Lucapina* and *Lucapinella* in the Western Atlantic. *Johnsonia* 1(10): 1-21.
- FARFANTE, I.P. 1943b. The genus *Diodora* in the Western Atlantic. *Johnsonia* 1(11): 1-20.

RIOS, E.C. 1994. Seashells of Brazil, second edition. Fundação Universidade do Rio Grande. Rio Grande, 368 pp. + 113 pls.

VERRILL, A. E. 1882. Notice of recent additions to the marine Invertebrata of the northeastern coast of America, with descriptions of new genera and species and critical remarks on others. Proceedings of the United States National Museum 5: 315-343.

Received: November 10, 2005. Accepted: December 20, 2005